

CLAIMS:

1. A valve adapted to control the flow rate of fluid flow from an implantable pump, comprising:
 - a multi-lumen member adapted to receive fluid-flow therethrough; and
 - a restrictor member coupled to the multi-lumen member such that the restrictor member is effective to selectively restrict at least a portion of one or more lumens in the multi-lumen member to thereby adjust the flow rate of fluid flowing through the multi-lumen member.
2. The valve of claim 1, wherein the multi-lumen comprises a multi-lumen capillary tube.
3. The valve of claim 2, wherein the multi-lumen member includes a first end coupled to an inlet port for receiving fluid flow from an implantable pump, and a second, opposed end having an outlet port for delivering fluid to a fluid-delivery catheter.
4. The valve of claim 3, wherein the restrictor member comprises a flexible membrane disposed adjacent to one of the first end or the second end of the capillary tube, the flexible membrane being effective to selectively restrict at least a portion of one or more lumens in the capillary tube.
5. The valve of claim 4, further comprising an actuator mechanism for applying pressure to the flexible membrane to selectively restrict at least a portion of one or more lumens in the capillary tube.
6. The valve of claim 5, wherein the actuator mechanism comprises a mechanical or electromechanical member.
7. The valve of claim 4, wherein the flexible membrane is expandable to selectively restrict at least a portion of one or more lumens in the capillary tube.

8. The valve of claim 4, wherein the flexible membrane is coupled to a housing to form a balloon-like structure such that the flexible membrane is inflatable to selectively restrict at least a portion of one or more lumens in the capillary tube.
9. The valve of claim 8, further comprising a hydraulic pump coupled to the flexible membrane and effective to selectively inflate and/or deflate the flexible membrane.
10. The valve of claim 9, further comprising an actuator mechanism coupled to the hydraulic pump for selectively actuating the hydraulic pump, the actuator mechanism being operable by telemetry.
11. An implantable drug-delivery pump, comprising:
 - a housing having a reservoir adapted to retain a fluid therein;
 - a pump inlet port formed in the housing for delivering fluid to the reservoir;
 - a reservoir outlet port formed in the housing and adapted to receive fluid from the reservoir;
 - a driver mechanism effective to drive fluid from the reservoir to the reservoir outlet port;
 - and
 - a valve in fluid communication with the reservoir outlet port, the valve including a multi-lumen member coupled to a restrictor member that is adapted to selectively restrict at least a portion of one or more lumens in the multi-lumen member to thereby adjust the flow rate of fluid flowing from the reservoir.
12. The implantable drug-delivery pump of claim 11, wherein the multi-lumen member comprises a multi-lumen capillary tube.
13. The implantable drug-delivery pump of claim 11, wherein the valve is disposed within the housing.

14. The implantable drug-delivery pump of claim 13, wherein the multi-lumen member comprises a multi-lumen capillary tube that includes a first end coupled to the reservoir outlet port for receiving fluid flow from the reservoir, and a second, opposed end coupled to a pump outlet port for delivering fluid to a fluid-delivery catheter.

15. The implantable drug-delivery pump of claim 11, wherein the valve is disposed within a fluid delivery catheter that is coupled to a pump outlet port formed in the housing and in fluid communication with the reservoir outlet port.

16. The implantable drug-delivery pump of claim 15, wherein the multi-lumen member comprises a multi-lumen capillary tube that includes a first end coupled to the pump outlet port, and a second, opposed end coupled to the fluid delivery catheter for delivering fluid to a patient.

17. The implantable drug-delivery pump of claim 11, wherein the multi-lumen member comprises a multi-lumen capillary tube, and wherein the restrictor member comprises a flexible membrane disposed adjacent to one of a first end or a second end of the capillary tube, the flexible membrane being effective to selectively restrict at least a portion of one or more lumens in the capillary tube.

18. The implantable drug-delivery pump of claim 17, further comprising an actuator mechanism for applying pressure to the flexible membrane to selectively restrict at least a portion of one or more lumens in the capillary tube.

19. The implantable drug-delivery pump of claim 18, wherein the actuator mechanism comprises a mechanical or electromechanical member.

20. The implantable drug-delivery pump of claim 17, wherein the flexible membrane is expandable to selectively restrict at least a portion of one or more lumens in the capillary tube.

21. The implantable drug-delivery pump of claim 17, wherein the flexible membrane is coupled to a housing to form a balloon-like structure such that the flexible membrane is inflatable to selectively restrict at least a portion of one or more lumens in the capillary tube.
22. The implantable drug-delivery pump of claim 21, further comprising a hydraulic pump coupled to the flexible membrane and effective to selectively inflate and/or deflate the flexible membrane.
23. The implantable drug-delivery pump of claim 11, further comprising an orifice disposed downstream of the valve and in fluid communication with the valve, the orifice including a differential pressure sensor that is effective to measure the flow rate of fluid through the orifice.
24. A method for controlling the flow rate of fluid being delivered to a patient from an implantable pump, comprising:
- providing a valve in fluid communication with a reservoir formed in an implantable pump, the valve including a multi-lumen member coupled to a restrictor member that is adapted to selectively restrict at least a portion of one or more lumens to thereby adjust the flow rate of fluid flowing from the reservoir; and
 - actuating the restrictor member to selectively restrict at least a portion of one or more lumens to thereby adjust the flow rate of fluid flowing from the reservoir.
25. The method of claim 24, wherein the multi-lumen member includes a first end coupled to an inlet port for receiving fluid flow from an implantable pump, and a second, opposed end having an outlet port for delivering fluid to a fluid-delivery catheter.
26. The method of claim 24, wherein the restrictor member comprises a flexible membrane disposed adjacent to one of the first end or the second end of the multi-lumen member, the flexible membrane being effective to selectively restrict at least a portion of one or more lumens in the multi-lumen member.

27. The method of claim 26, further comprising an actuator mechanism for applying pressure to the flexible membrane to selectively restrict at least a portion of one or more lumens in the multi-lumen member.
28. The method of claim 27, wherein the actuator mechanism comprises a mechanical or electromechanical member.
29. The method of claim 26, wherein the flexible membrane is expandable to selectively restrict at least a portion of one or more lumens in the multi-lumen member.
30. The method of claim 26, wherein the flexible membrane is coupled to a housing to form a balloon-like structure such that the flexible membrane is inflatable to selectively restrict at least a portion of one or more lumens in the capillary tube.
31. The method of claim 30, further comprising a hydraulic pump coupled to the flexible membrane and effective to selectively inflate and/or deflate the flexible membrane.
32. The method of claim 31, further comprising an actuator mechanism coupled to the hydraulic pump for selectively actuating the hydraulic pump, wherein the actuator mechanism is operable by telemetry.